

ATMOSPHERIC ELECTRICITY.

Thunder-storms.—1st, Kan., Tenn., Ill., Ark., Tex.; 2nd, Ky., Ga., Ill., Ind., N. C., Tenn.; 3rd, Va., Md., Mass., Conn., Del., Fla., Ind., N. J., N. Y., Pa.; 4th, Mass.; 6th, Tex., Iowa, Mo., Ind., Mich., Ill., Kan., Ohio, Wis.; 7th, Minn., Miss., Pa., N. J., Va., R. I., Conn., Dak., N. Y., Kan., Md., Mass., W. Va.; 8th, Ind. T., Neb., Dak., Minn., Tex., Ill., Iowa, Kan., Mo., Wis.; 9th, Tex., Ala., La., Tenn., Ark., Del., Iowa, Miss., Mo.; 10th, Fla., Ala., Md., Mass., Pa.; 11th, Ind. T., Kan., Ala., W. Va., Tenn., Pa., Fla., Va., Md., Ga., Iowa, Ky., Mo., Neb., N. Y., Ohio, W. Va.; 12th, Ala., Iowa, Mo., Ohio, W. Va., Ky., Ill., Va., Pa., N. Y., N. J., Md., Del., Fla., Ga., Ind., N. C., S. C., Tenn.; 13th, Va., Pa., N. J., N. Y., Fla., Ind., Md., Ohio; 14th, Pa., N. J.; 15th, Tex.; 16th, Mich., Ohio, Tex.; 17th, Fla.; 18th, N. M., Cal.; 19th, Kan., Dak.; 20th, Kan., Neb., Iowa, Dak.; 21st, Ind. T., Nev., Dak., Ill., Iowa; 22nd, Tex.; 23rd, Mich., Ohio, Ind., Ill.; 24th, Cal., W. Va., Ohio, Pa., Va., N. J., Del., Ind., Iowa, Md., N. Y.; 25th, Idaho; 26th, Neb., Cal., Tex., Ohio, Mich., Kan., Ind., Tex.; 27th, Tex., La., Miss., Ala., Mo., Mich., Ohio, N. Y., Pa., Ark., Fla., Ill., Ind., Kan., Mass., N. C., Tenn.; 28th, Utah, Fla., Tenn., Ga., S. C., N. C., Va., Md., Me., Ind., Mass., Mo., Pa.; 29th, Ind. T., Ill., Kan., Mo., Tex., W. Va.; 30th, Ala., Fla., Tenn., Ohio, Ky., Ind. T., Ga., La., Md., Tex., W. Va.; 31st, Tex., Miss., W. Va., Pa., Fla., Ga., La., Ohio, Va.

Auroras.—Pembina, Dak., 3rd and 23rd; Newbury, Vt., 29th; Kensico, N. Y., 17th; Starkey, N. Y., 5th; Coalville, Utah, 3rd; Judsonia, Ark., 8th; Vevay, Ind., 20th; Cresco, Ia., 27th; Iowa City, 1st, 12th, 23rd, 27th, 28th; Woodstock, Md., 6th, 21st, 22nd, 26th, 28th. On Pike's Peak the electricity was intense, and interfered with the working of wires on the 6th and 26th; North Platte, strong, 8th; Santa Fé, interfered with the working of telegraph lines north and south, 18th and 26th.

Magnetic Phenomena.—Prof. G. Hinrichs, Iowa City, Ia., reports the average diurnal magnetic range in declination as 6.6 minutes.

OPTICAL PHENOMENA.

Solar Halos.—1st, Ill., Ind., Mich., N. Y., Ohio, Pa., Wis., Ga.; 2nd, Conn., Me., N. H., N. Y., Vt., Fla., Ga., R. I., N. C.; 3rd, Cal.; 4th, Ohio; 5th, Ill., Ind., Iowa, Kan., Mich., Wis., Ohio, Ga.; 6th, Ill., Ind., Iowa, Me., Md., Mass., Mich., N. H., N. Y., Va., N. M., R. I., Vt., Conn.; 7th, Del., Ill., Iowa, Ohio, Tex., Ga., N. C., R. I.; 8th, Ind., Ohio, Mich., Ga., S. C.; 9th, Ill., Ind., Ohio, Ky., Ga., Me.; 10th, Iowa, Ohio, N. M., Mich., Me.; 11th, Ill., Iowa, Me., Neb., Ohio, Wis., S. C., Vt., N. H.; 12th, Iowa, Ohio, Me.; 13th, Fla., S. C.; 14th, Ohio, Mich., Conn., N. C.; 15th, Iowa, Miss., Neb., N. Y., Pa., Cal., La., Mich., S. C.; 16th, Miss., Ohio, Cal., Tex., La., S. C., Ga.; 17th, Me., N. Y., Vt., Col., La., Fla., S. C.; 18th, Ohio, Col.; 19th, Cal., La.; 20th, Ill., Iowa, Miss., Wis., La.; 21st, Conn., Miss., N. H., N. Y., Ohio, Pa., S. C., N. C., R. I.; 22nd, Col., S. C.; 23rd, Conn., N. J., Ohio, Cal., R. I., Vt.; 24th, Conn., Ohio, S. C., Me.; 25th, Conn., N. M.; 26th, N. Y., Ohio, Cal.; 27th, Minn., Mich., Ohio, N. C.; 28th, Iowa, Mich.; 29th, Ill., Ind., Ohio, Ky.; 30th, N. Y., S. C., Ga., N. C., Va.; 31st, Cal., Iowa, N. H., N. Y., Vt.

Mirage.—Morristown, Dak., 31st; Olivet, Dak., 24th, 25th; New London, Conn., 21st.

MISCELLANEOUS PHENOMENA.

BOTANICAL.—Alabama—in bloom, 17th, quince and dogwood; 11th, sloes and wild plums; 12th, buckeye; 20th, honeysuckle; 25th, may-apple; 24th, snowdrops; 20th to 30th, apple and pears; 21st, fish poison; 16th, peach, apricot and plum; in leaf, 10th, quince tree; 8th, poplar and tulip trees. California—Visalia, in bloom, 2nd, apple; 3rd, plum. Connecticut—in bloom, 16th, white maple; in leaf, 19th, sycamore and elm; 15th, willow; budding, 6th, flowers; 8th, spirea; 19th, cherry; 20th, apple and pear; 24th, tigerlilies and lilies of the valley sprouting. Arkansas—in bloom, 15th, red-bud trees; 6th, apricots; 18th, dogwood; 22nd, lilacs; 25th, sweet gum; 26th, buckeye; in leaf, 16th, black and red oak. Dakota—Olivet, 1st, grass and weeds sprouting; Pembina, 24th, willows in bloom, grass sprouting. Florida—in bloom, 7th, peaches; in leaf, 28th, trees generally. Georgia—in bloom, 7th, peach and plum; in leaf, 20th, forest trees. Illinois—in bloom, 20th to 24th, peach; 22nd, japan quince; 25th, violets; 27th, flowering almond; 28th, daffodills; 21st, cowslips; 7th, ash and elm; in leaf, 11th, gooseberry; budding, 8th, peonies, gooseberries, rose bush, lilac and crab-apple; sprouting, 6th, grass and rhubarb. Indiana—in bloom, 1st, daffodills; 12th and 19th, peach; 8th, pansies; 14th, violets; 12th, iris, lilac and hyacinth; 10th, spinach gathered; budding, 8th, peach. Iowa—in bloom 23rd, 26th and 31st, peach; 11th, maple and elm; 16th, liverwort, wild flowers and hazel brush; 21st, cottonwood and box elder; 14th, poplars; 18th, myrtle; 24th, june cherries; 31st, siberian crab-apple; in leaf 8th, plum; 31st, apple; budding, 9th, maple and lilac; sprouting, 8th, grass and leeks; 24th, wheat; 31st, grass sufficient for pasture. Indian Territory—Fort Sill, in bloom 5th, peach. Idaho Territory—Boise City, in bloom 20th, plum and cherry; 22nd, peach. Kansas—in bloom, 9th, 11th, 19th to 21st, peach; 25th, wild plum and judas tree; 16th, tulips and ivy; 13th, maples; 15th, violets; 20th, plums; 26th, red bush; 27th and 30th, apples; in leaf, 5th raspberries; 14th, lilacs; 23rd, apples; 31st, pear, peach and forest trees; 22nd, crab-apple; 19th, rose and vine; budding, 6th, maples; sprouting, 31st, corn and oats; 14th, prairie grass. Louisiana—in bloom, 16th, orange trees. Maine—28th, mayflowers first gathered. Maryland—in bloom, 24th, peach; 14th, forsythia; 17th, plum; 24th, cherry; 7th, crocus and periwinkle; in leaf, 11th, weeping willow; budding, 8th, alder. Massachusetts—in bloom, 1st, skunk cabbage; 13th and 14th, crocus; 23rd, pansies; 10th, violets; in leaf, 23rd, lilac and syringa; budding, 12th, willow. Mississippi—in bloom, 1st, pitch pine; 5th, sweet-gum, evergreen, cherry, yellow woodbine and red maple; 6th, violets, spider-wort and whortleberry; 3d, post oak, red oak and plum; 8th, dewberry, red woodbine, sassafras and judas tree; 10th, flag-lilly; 12th, papaw; 13th, spirea, flowering almond and verbena; 16th,

white oak, black-jack oak, iron-wood, crab-apple, dogwood, box-alder and live oak; 17th, beech, wild cherry and long-leaf pine; 21st, azalia and apple; 27th, petunias, begonias, roses, sweet william and blackberry; 31st, black locust; in leaf, 6th, poplar; 12th, china tree; 30th, all forest trees in full leaf. Michigan—in bloom, 13th, polyanthus; 19th, maple. Missouri—in bloom, 1st, hazel; 10th, 13th, 20th and 22d, peach; 8th, elm and maple; 18th, service berry; 19th, crocus and apricot; 21st, bridal-wreath; 28th, flowering almond; in leaf, 8th, rose and lilac; 7th, gooseberry and raspberry; 14th, clematis; 24th, morello-cluny tree and cherry; 22d, siberian crab-apple; 27th, pear and plum; budding, 2d, honeysuckle; sprouting, 2d, alder; 6th, violets; 10th, grass green and growing finely; 28th, wheat twenty-two inches high. Nebraska—in bloom, 20th, 25th, 31st, peach; 8th, maple; 20th, cotton-wood; 23rd, apricot; 26th, gooseberry. Nevada—Winnemucca, 23rd, grass growing, sage brush in leaf. New Mexico—Santa Fe, 25th, trees budding, grass sprouting. New Jersey—in bloom, 17th, forsythia; 19th, japan quince; 27th, peach and maple; 9th, blue-bells and lillies; in leaf, 17th, lilac; 31st, grass forward, and wheat in excellent condition. New York—in bloom, 12th, soft maple; 16th, may flowers; 15th, dandelion; budding, 29th, lilac; 8th, wild onions and grass growing; 31st, wheat looks very well. North Carolina—in bloom, 4th and 27th, peach; 3rd, apricot; budding, 3rd, peach. Ohio—in bloom, 20th, peach; 9th, maple; 8th, crocus and snowdrops; 14th, violets; 28th, cherry; 10th, elm; budding, 9th, lilac; 11th, grass growing; 27th, wheat looking very well. Pennsylvania—in bloom, 7th, maples; 31st, peach and apricot; 31st, wheat looking well. South Carolina—in bloom, 1st, peach; 13th, oak. Tennessee—in bloom, 5th, wild flowers; 11th, plum; 14th, peach; Memphis, 31st, vegetation much advanced. Texas—in bloom, 12th, roses; in leaf; 16th, live oak; 31st, wheat and oats look well, corn sprouting. Utah—Salt Lake City, in bloom, 24th, apricot; 28th, peach. Virginia—in bloom, 13th, 14th, 15th, 23rd and 27th, peach; 10th, apricot; 15th, cherry; 20th, plum; 22nd, forsythia; 11th, liver-wort; 10th, strawberries; in leaf, 22nd, willow and crab apple; 27th, gooseberry and quince; budding, 26th, canada snake root; 12th, grass growing finely. West Virginia—Morgantown, in bloom, 17th, easter flowers; 19th, peach; in leaf, 17th, rose bushes; 18th, jessamine; 12th, gooseberry; 12th, apple trees in full bud. Wisconsin—in bloom, 31st, elm, white maple, alder, willow, lombard poplar, liverwort and blood-root; budding, 31st, crab-apple, lilac and currant.

BIRDS.—*Blackbirds*: Ft. Pembina, Dak., 20th; Southington, Conn., 4th; St. Mary's Home, Ind., 4th; Monticello, Ia., 13th; Vail, Ia., 6th; Creswell, Kan., 24th; Cornish, Me., 29th; Standish, Me., 23rd; Waltham, Mass., 5th; Oregon, Me., 18th; Genoa, Neb., 9th; Waterburg, N. Y., 29th; Palermo, N. Y., 6th; Contoocookville, N. H., 22nd; Linden, N. J., 10th; Starkey, N. Y., 13th. *Bluejays*: Detroit, Mich., 2nd. *Bluebirds*: Ft. Wayne, Mich., 6th; Mt. Sterling, Ill., 1st; Tabor, Ia., almost daily; Boonsboro, Ia., throughout month; Milford, Ind., 1st; Cornish, Me., 9th; Rowe, Mass., 10th; Waltham, Mass., 1st; New Bedford, Mass., 30th; Northport, Mich., 11th; Minneapolis, Minn., 6th; Palermo, N. Y., 3rd; Auburn, N. H., 7th; Dunbarton, N. H., 1st; Waterburg, N. Y., 7th; Coalville, Utah, 20th; Woodstock, Vt., 4th; Madison, Wis., 4th. *Thrush*: Urbana, Ohio, 30th. *Robins*: Southington, Conn., 6th; Hennepin, Ill., 7th; Monticello, Ia., 7th; Tabor, Ia., almost daily; Boonsboro, Ia., throughout month; Vail, Ia., 27th; Afton, Ia., 14th; Cornish, Me., 20th; West Waterville, Me., 20th; Standish, Me., 10th; Rowe, Mass., 10th; Waltham, Mass., 15th; New Bedford, Mass., 8th; Fall River, Mass., 10th, in great numbers; Detroit, Mich., 1st; Northport, Mich., 10th; Minneapolis, Minn., 21st; Norfolk, Neb., 11th; Plattsmouth, Neb., 1st; Auburn, N. H., 9th; Dunbarton, N. H., 9th; Linden, N. J., 6th; Waterburg, N. Y., 7th; Flushing, N. Y., 1st; Chambersburg, Pa., 4th; West Charlotte, Vt., 17th; Coalville, Utah, 21st; Woodstock, Vt., 8th; Lynchburg, Va., 1st; Ashland, Wis., 20th; Rocky Run, Wis., 3rd; Madison, Wis., 1st; New London, Conn., 8th. *Geese*: Ft. Hartsuff, Neb., 18th; Judsonia, Ark., 27th, 28th, 29th; Southington, Conn., 10th, 16th, 30th; Morristown, Dak., 1st; Quitman, Ga., 1st; Riley, Ill., 1st, 2d; Mt. Sterling, Ill., 1st; Laconia, Ind., 2d; St. Mary's Home, Ind., 4th; Monticello, Iowa, 5th; Tabor, Iowa, almost daily; Boonsboro, Iowa throughout month; Creswell, Kan., 20th, 27th, 28th; West Waterville, Me., 25th; Standish, Me., 4th; Mt. Desert, Me., 7th; 7th; Oregon, Mo., 6th; Genoa, Neb., 16th; Litchfield, Mich., 3rd and 4th; Frankford, Mo., 4th; Norfolk, Neb., 20th; Palermo, New York, 3d; Auburn, New Hampshire, 28th; Catawissa, Pa., 17th. *Ducks*: Olivet, Dak., 1st; Mt. Sterling, Ill., 8th, 20th; Monticello, Iowa, 5th; Tabor, Iowa, almost daily; Boonsboro, Iowa, throughout month; Standish, Me., 4th; Frankford, Mo., 2nd; Rocky Run, Wis., 4th. *Swallows*: Fayette, Miss., 30th; Prospect Hill, Va., 19th. *Cedar birds*: Prospect Hill, Va., 18th. *Meadow Larks*: Ft. Pembina, D. T., 29th; Mt. Sterling, Ill., 21st; Monticello, Iowa, 4th; Vail, Iowa, 11th; Milford, Ind., 7th; Afton, Iowa, 14th; Empire City, Kan., 4th; Norfolk, Neb., 14th; Genoa, Neb., 6th; Contoocookville, N. H., 29th; Urbana, Ohio, 19th. *Redbirds*: Houston, Fla., 8th; Cornish, Me., 29th; Somerset, Mass., 7th; Waterburg, N. Y., 29th; Starkey, N. Y., 16th; New London, Conn., 8th. *Woodpeckers*: Creswell, Kan., 23rd; Starkey, N. Y., 28th. *Osprey*: Prospect Hill, Va., 23rd. *Cranes*: Houston, Fla., 7th; Tabor, Iowa, almost daily; Vail, Iowa, 31st; Empire City, Kan., 7th; Baxter Springs, Kan., 5th; Genoa, Neb., 22nd; Belmont Farm, Tex., 18th. *Sparrows*: Monticello, Iowa, 10th; Cornish, Me., 16th; Standish, Me., 10th; Rowe, Mass., 10th; Waltham, Mass., 13th; Somerset, Mass., 19th; Oregon, Mo., 11th; Contoocookville, N. H., 22nd; Waterburg, N. Y., 8th; Ringgold, Ohio, 26th; Chambersburg, Pa., 4th; Woodstock, Vt., 13th. *Hummingbirds*: Fayette, Miss., 28th; Brookhaven, Miss., 24th; Starkey, N. Y., 30th. *Pigeons*: Northport, Mich., 7th and 8th, numerous. *Bobolinks*: Chambersburg, Pa., 2nd. *Oriole*: Strufford, Vt., 18th. *Phebes*: Starkey, N. Y., 11th, West Charlotte, Vt., 31st. *Chickadees*: Starkey, N. Y., 16th. *Prairie Chickens*: Olivet, Dak., 5th; Creswell, Kan., 9th. *Whippoorwills*: Forsyth, Ga., 20th; Milford, Ind., 12th; Brookhaven, Miss., 19th. *Killdeers*: Creswell, Kan., 12th, Norfolk, Neb., 8th; Palermo, N. Y., 28th; Bellefontaine, Ohio, 10th; Bloomfield, Wis., 10th. *Nightingale*: Fayette, Miss., 28th. *Mockingbirds*: Judsonia, Ark., 7th; Brookhaven, Miss., 28th. *Wrens*: Chambersburg, Pa., 30th. *Martins*:

Houston, Fla., 4th; Laconia, Ind., 17th; Stanley, Kan., 30th; New Market, Md., 16th; Lebanon, Mo., 28th; Ringgold, Ohio, 28th; Chambersburg, Pa., 29th. *Owls:* Oregon, Mo., 12th.

Earthquakes.—On the 12th at Columbus, Ky., 4 a. m., severe shock overturning furniture, &c.; a portion of the bank of Mississippi river caved in; rumbling lasted a few seconds. 12th, Milford, Vt., two shocks. 17th, St. Thomas, Lower California, two sharp shocks. 18th, Tacoma, Wash. T., 6:30 a. m., shock plainly felt.

Sun spots.—The following observations, made by Mr. D. P. Todd, have been kindly communicated by Rear Admiral John Rogers, U. S. N., Superintendent of the U. S. Naval Observatory:

March, 1878.	No. of new—		Disappeared by solar rotation.		Reappeared by solar rotation.		Total number visible.		Remarks.
	Groups	Spots.	Groups	Spots.	Groups	Spots.	Groups	Spots.	
1st, 1 p. m...	0	0	0	0	0	0	0	0	Large group of faculæ.
3rd, 3 p. m...	1	8	0	0	0	0	1	8	
6th, 10 a. m...	1	1	0	0	0	0	2	5	
6th, 12 m...	0	0	0	0	0	0	2	5	Spots mostly small.
6th, 1 p. m...	0	2	1	4	0	0	1	3	
8th, 10 a. m...	0	6	0	0	0	0	1	9	
9th, 2 p. m...	0	0	0	0	0	0	1	9	} Large groups of faculæ.
9th, 11 a. m...	0	0	0	0	0	0	1	6	
4 p. m...	1	1	0	0	0	0	2	6	
11th, 11 a. m...	0	9	0	0	0	0	1	10	Large group of faculæ. Many of the spots small.
13th, 10 a. m...	0	4	0	0	0	0	1	14	
16th, 10 a. m...	0	10	0	0	0	0	1	24	
18th, 11 a. m...	0	0	0	12	0	0	1	2	Large group of brilliant faculæ.
19th, 3 p. m...	0	0	1	2	0	0	0	0	
20th, 11 a. m...	1	1	0	0	0	0	1	1	
12 m...	0	0	0	0	0	0	1	1	}
4 p. m...	0	1	0	0	0	0	1	2	
21st, 2 p. m...	0	0	0	0	0	0	1	2	
22nd, 11 a. m...	0	0	0	0	0	0	1	1	}
5 p. m...	0	0	0	0	0	0	1	1	
23rd, 12 m...	0	0	0	0	0	0	1	1	
25th, 3 p. m...	0	0	0	0	0	0	0	0	}
26th, 11 a. m...	0	0	0	0	0	0	0	0	
29th, 12 m...	0	0	0	0	0	0	0	0	

Prof. G. Hinrichs, at Iowa City, Ia., reports none on the 1st, 6th, 18th, 19th, (? cloudy,) 20th, 23rd, 24th, 25th, 26th, 28th and 31st; one group of four spots on the 4th; one group of two spots the 8th and 11th; one group of six spots the 12th.

U. S. Signal Service Telegraph Lines.—Sergeant Belville, in charge of station at Cape Lookout, N. C., reported that on March 21st the U. S. Revenue Steamer Schuyler Colfax anchored off the station, and, by means of the International Code of Signals, asked for and obtained the weather indications. This is believed to be the first instance in which such information has been called for and received from an U. S. Signal Service Station. At 7:35 a. m. March 25th, Private William Bolton, in charge of the "Flying Signal Station" at Life Saving Station No. 3, about twenty-five miles south of Cape Henry, informed the Chief Signal Officer by telegraph that the Austrian brigantine "Nipoli" went ashore early that morning about two miles north of his station, and that he had proceeded to and opened a telegraph station at the scene of the disaster. Notice was at once telegraphed to the Coast Wrecking Companies, U. S. Revenue Cutter, Seaman's Aid Society, &c., at Norfolk, Va., and to the U. S. Revenue Cutter "Hamilton" at Delaware Breakwater, Del. The Coast Wrecking company's steamer "Rescue" left Norfolk at 9:15 a. m. and reached the stranded vessel at 2 p. m. same day. The U. S. Revenue Cutter "Hamilton" arrived there at 6 a. m. of the 26th. Owing to the prompt action of Private Bolton, and the immediate transmittal of said information to the proper authorities, the vessel was saved, having been gotten off at 4 p. m. of the 28th. The following letter in the case is apparent:

WAR DEPARTMENT,
OFFICE OF THE CHIEF SIGNAL OFFICER,
Washington, D. C., March 29th, 1878.

Private WILLIAM BOLTON, *Signal Service, U. S. Army,*
In charge of *Flying Station at Life-saving Station No. 3,*
Van Slack's Landing, Currituck county, N. C.

SIR: The Chief Signal Officer takes pleasure in commending the alacrity and energy displayed by you at the time of the wreck of the "Nipoli." This is the first instance in which the wreck of a vessel has been reported by telegraph from the scene of wreck in advance of the arrival of the Life-boat.

I am, sir, very respectfully, your obedient servant.

(Signed)

ALBERT J. MYER,
Brig. General, (Bvt. Assigned,) Chief Signal Officer of the Army.

PUBLISHED BY ORDER OF THE SECRETARY OF WAR.

Albert J. Myer

Copy furnished for

Brig. Gen. (Bvt. Assg'd.) Chief Signal Officer, U. S. A.